TECHNICAL REVIEW DOCUMENT
For
RENEWAL / REOPENING / MODIFICATION TO OPERATING PERMIT 95OPMR010

Colorado Interstate Gas Company – Ft. Morgan Compressor Station
Morgan County
Source ID 0870003

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Revised February, March and June 2006

I. Purpose:

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the reopening, renewal and modification of the Operating Permit for the Ft. Morgan Compressor Station. The current Operating Permit for this facility was issued on April 1, 2002 and expires on April 1, 2007. The Division sent a letter dated August 16, 2004 indicating that the Title V Operating Permit for the Ft. Morgan facility would be re-opened for cause under the provisions of Colorado Regulation No. 3, Part C, Section XIII in order to correctly address the facility as a major source of hazardous air pollutants (HAPs) and include the appropriate applicable requirements from 40 CFR Part 63 – "National Emission Standards for Hazardous Air Pollutants for Source Categories. Since processing of the reopening coincided with the second renewal of the current Operating Permit, the Division is processing the reopening and the second renewal together. Finally, during processing of the second renewal, the source indicated that they wished to make changes to the facility and submitted a construction permit application on February 13, 2006. Since the renewal permit was in progress and the schedule for construction was sufficient to allow processing of the modification as a combined construction/operating permit, the source submitted revised applications to modify the operating permit on March 14 and 16, 2006 and those requested changes are included in the permit.

This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the Division's letter dated August 16, 2004 indicating a reopening was required, the information provided in the renewal application submitted on January 10, 2006, additional information submitted on October 26, 2004 and December 8, 2005 regarding the reopening, the permit application submitted on February 13, 2006 and revised applications submitted on March 14 and 16, 2006 to reflect proposed modifications to the facility, comments received during the public comment period (March 29 thru April 29, 2006), previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with

subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at http://www.cdphe.state.co.us/ap/Titlev.html. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility is a natural gas storage and transmission facility and is classified under the Standard Industrial Classification 4922. Gas is compressed to specification for injection to a field reservoir using five (5) internal combustion engines to power compressor units. Two (2) additional engines on site are utilized in the refrigeration of propane used in heat exchange to extract natural gas liquids from the gas during recovery from the field reservoir. Other activities conducted on site include dehydration of the gas through contact with ethylene glycol, and gravity separation of condensates. A sixth engine/compressor was added to the facility in 2003.

Based on the information available to the Division and provided by the applicant it appears that no modifications have been made to the significant emission units since the latest permit was issued.

The plant is located approximately 5 miles south of Fort Morgan, CO in an area designated as attainment for all criteria pollutants.

There are no affected states within 50 miles of the plant. There are no Federal Class I designated areas within 100 kilometers of the plant.

Condensate Storage Tanks and Condensate Loading Equipment

Revisions were made to Colorado Regulation No. 3, regarding condensate storage tanks and condensate truck loading equipment and those revisions took effect on December 30, 2002. Previously, under Regulation No. 3, certain size condensate storage tanks and condensate truck loading equipment meeting a specified throughput limit were exempt from APEN reporting and permitting requirements and were considered insignificant activities for Title V operating permit purposes. With the revisions to Colorado Regulation No. 3, only condensate storage tanks and condensate truck loading equipment at exploration and production (E & P) sites, meeting specified throughput limits are APEN exempt and insignificant activities. Condensate Tanks are listed in the insignificant activity list. In a March 15, 2006 e-mail, the source indicated

that the condensate tanks are pressurized and that the tank unloading is vapor balanced therefore, emissions from the condensate tanks and condensate loading equipment are below the APEN de minimis levels.

MACT Requirements

In the first renewal (issued April 1, 2002), the Division determined that the Ft. Morgan facility was a minor source for hazardous air pollutant emissions. The minor source determination was based on the procedures in the Natural Gas Transmission and Storage (NGTS) Facilities MACT, which allows a source to use the maximum natural gas throughput rate to calculate HAP emissions from glycol dehydrators in order to determine major source status, in lieu of using traditional potential to emit methods (i.e. design rate or permitted emissions).

In 2003, the source added a new engine to the facility, and the addition of this new engine was processed as a minor modification under the provisions of Colorado Regulation No. 3, Part C, Section X. The minor modification application was submitted on May 13, 2003. The revised permit was not issued until August 12, 2004. Issuance of the minor modification was delayed in order to get an applicability determination from EPA regarding whether the provisions in 40 CFR Part 60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants) apply.

Prior to issuance of the minor modification, the Division had frequent discussions with EPA regarding the applicability determination request and as part of those discussions, the Division reviewed HAP emissions from the facility based on AP-42 emission factors. Based on those estimates, the Division determined that the source was close to the major source level (over 8 tons/yr of HAPS). For HAP emissions, the Division has less confidence in AP-42 emission factors, particularly for lean-burn engines, and prefers that sources use manufacturer's emission factors, if available. The Division notified CIG in a March 8, 2004 e-mail and indicated that the source should estimate HAP emissions using manufacturer's emission factors, if available. In lieu of using manufacturer's emission factors, the source opted to conduct performance tests on specific engines. The performance tests were conducted in July 2004 and results from the tests indicated that formaldehyde emissions from three engines (E003, E004 and E005) were higher than emissions predicted by AP-42, therefore, the facility was major for HAPs with the installation of the new engine. Therefore, since the August 12, 2004 modified Title V operating permit did not contain the appropriate MACT requirements for the facility, the Division notified the source, in a letter dated August 16, 2004, of its intent to reopen the Title V operating permit for this facility because of a material mistake as provided for in Colorado Regulation No. 3, Part C, Section XIII.A.3. A discussion of the relevant MACT standards and their applicability to the facility is as follows.

Case-by-Case MACT - 112(j) (40 CFR Part 63 Subpart B §§ 63.50 thru 63.56)

Under the federal Clean Air Act (the Act), EPA is charged with promulgating maximum achievable control technology (MACT) standards for major sources of hazardous air pollutants (HAPs) in various source categories by certain dates. Section 112(j) of the Act requires that permitting authorities develop a case-by-case MACT for any major sources of HAPs in source categories for which EPA failed to promulgate a MACT standard by May 15, 2002. These provisions are commonly referred to as the "MACT hammer".

Owner or operators that could reasonably determine that they are a major source of HAPs which includes one or more stationary sources included in the source category or subcategory for which the EPA failed to promulgate a MACT standard by the section 112(j) deadline were required to submit a Part 1 application to revise the operating permit by May 15, 2002. The source did submit a Part 1 application to the Division prior to May 15, 2002. It should be noted that the Part I application indicated that major source status was based on considering HAP PTE for the dehydrators based on traditional PTE (i.e. design rate and/or permitted emissions), not the procedures provided in the NGTS MACT. Since the EPA has signed off on final rules for all of the source categories, which were not promulgated by the deadline, the case-by-case MACT provisions in 112(j) no longer apply.

NGTS Facilities MACT(40 CFR Part 63 Subpart HHH)

As specified in 40 CFR Part 63 Subpart HHH § 63.1270(a), "a facility that is determined to be an area source, but subsequently increases its emissions or its potential to emit above the major source levels (without first obtaining and complying with other limitations that keep its potential to emit below major source levels), and becomes a major source, must comply thereafter with all applicable provisions of this subpart starting on the applicable compliance dated specified in paragraph (d) of this section." As discussed above, during processing of the first renewal permit, the facility was an area source; however, with the addition of the new engine, the facility became a major source for HAPS. The new engine commenced operation on August 19, 2003; therefore the facility became a major source for HAPS on August 19, 2003. Under the provisions of 40 CFR Part 63 Subpart HHH § 63.1270(d)(1), which specifies the compliance dates for affected sources (defined as each glycol dehydration unit), "the owner or operator of an area source, the construction or reconstruction of which commenced before February 6, 1998, that increases it emissions of (or its potential to emit) HAPS such that the source becomes a major source that is subject to this subpart shall comply with this subpart 3 years after becoming a major source." Therefore, the source has until August 19, 2006 to comply with the MACT provisions for the two ethylene glycol dehydrators. In their renewal application the source indicated that the dehydrators might be removed from the facility; therefore, the source has not provided information as to how they will comply with the MACT requirements.

In their February 13, 2006 construction permit application, the source indicated that the existing ethylene glycol dehydrators would be removed and that a new triethylene glycol dehydrator would be installed. In their revised permit application submitted on March 14, 2006 the source requested limits on hours of operation for some of the existing engines and a limit on formaldehyde emissions from the new engine in order to keep HAP emissions below the major source level. Although the source is requesting permitted VOC emissions at 8760 hours per year of operation for the proposed new glycol dehydrator, based on the provisions in 40 CFR Part 63 Subpart HHH 63.1270(a)(1), which allow sources to use the natural gas throughput rate determined from the injection and withdrawal rates at the facility, rather than permitted or design rates, the HAP emissions from the facility are below the major source level. Therefore, since the facility will be a minor source upon the installation of the new dehydrator, the new dehydrator will not be subject to the NGTS MACT requirements. It is expected that the existing dehydrators will be removed prior to the compliance date, however, in the event that they are not, the Division has included in the NGTS MACT requirements for those dehydrators.

Reciprocating Internal Combustion Engine (RICE) MACT (40 CFR Part 63 Subpart ZZZZ)

An affected source under the RICE MACT is any existing, new or reconstructed stationary RICE with a site-rating of more than 500 brake horsepower. The new engine became subject to the MACT requirements on August 16, 2004. As indicated by the current Title V permit, all of the existing engines are affected sources under the RICE MACT. Existing (commenced construction prior to December 19, 2002) 4-cycle lean burn RICE do not have to meet the requirements in Subparts A or ZZZZ, including the initial notification requirements as provided for in 40 CFR Part 63 Subpart ZZZZ § 63.6590(b)(3). The current Title V permit identifies existing engines E006/CG-10 and E007/CG-11 as 4-cycle lean burn engines and all other existing engines as 4-cycle rich burn engines. However, in their renewal application (received on January 10, 2006), the source indicated that engines E003/CG-7, E004/CG-8 and E005/CG-9 are actually 4-cycle lean burn engines (they are operated with greater than 2% oxygen in the exhaust). Therefore, only existing engines E001/CG-1 and S002/CG-2 are subject to the MACT. Existing engines have until June 15, 2007 to comply with the MACT standards. It should be noted that although the new engine is subject to the RICE MACT, since new and existing engines have different compliance dates, the source can still take emission limitations and become a minor source for HAPS in order to avoid the RICE MACT requirements for the existing engines and any new engines that may be installed at the facility in the future. In their revised permit application submitted on March 14, 2006 the source requested limits on hours of operation for some of the existing engines and a formaldehyde emission limit on the new engine in order to keep HAP emissions below the major source level. As discussed above, the source is requesting permitted VOC emissions from the proposed new dehydrator based on 8760 hours per year of operation and at that level, HAP emissions exceed the major source level. However, in determining whether a source is major for HAPS, the RICE MACT allows sources to use the provisions in 40 CFR Part 63 Subpart HHH § 63.1270(a)(1),

rather than design rate or permitted emissions. Using those provisions, HAP emissions from the facilities are below the major source level. Therefore, the existing engines will not be subject to the RICE MACT requirements.

Industrial, Commercial and Institutional Boilers and Process Heaters MACT (40 CFR Part 63 Subpart DDDDD)

Unlike the RICE MACT, the MACT for industrial, commercial and institutional boilers and process heaters, does not allow for sources to use the provisions in the NGTS MACT to determine HAP emissions from the glycol dehydrators (i.e. use of maximum natural gas throughput rate, not design rate or permit limits). Therefore, the facility was a major source of HAPS prior to the addition of the new engine (total HAPS exceed 25 tons/yr*).* Although 40 CFR Part 63 Subpart DDDDD applied at that time, existing (constructed before January 13, 2003) small gaseous fired units are not subject to any of the requirements in 40 CFR Part 63 Subparts A and DDDDD, including the initial notification requirements (§ 63.7506(c)(3)). The boilers and/or process heaters at this facility would fall under the existing small gaseous fired unit category and would therefore not be subject to any requirements.

With the proposed modification (new dehydrator, hours of operation limits on existing engines and a formaldehyde limit on the new engine) the source requested VOC emission limitations based on 8760 hours per year of operation and at this level of operation, HAP emissions at the facility would exceed the major source level. Therefore, the facility is still a major source for HAPS for purposes of 40 CFR part 63 Subpart DDDDD. The reboiler on the proposed new glycol dehydrator is rated at 6.3 mmBtu/hr and therefore falls under the new small gaseous fired unit category. Such units are not subject to any of the requirements in 40 CFR Part 63 Subparts A and DDDDD, including the initial notification requirements (§ 63.7506(c)(4)).

Organic Liquid Distribution (Non-Gasoline) MACT (40 CFR Part 63 Subpart EEEE)

As provided for in 40 CFR Part 63 Subpart EEE § 63.2334(c)(2), organic liquid distribution operations do not include activities and equipment at NGTS facilities; therefore, the organic liquid distribution MACT requirements do not apply.

Compliance Assurance Monitoring (CAM) Requirements

CAM applies to any emission unit that is subject to an emission limitation, uses a control device to achieve compliance with that emission limitation and has potential pre-control emissions greater than major source levels. The new engine that is in the current Title V permit was installed without a control device. An oxidation catalyst was installed on the unit in order to meet the MACT requirements. A MACT emission limitation is exempt from CAM under the provisions of 64.2(b)(1)(i) and the control device is not required to meet the permitted emission limitations for CO or VOC and uncontrolled emissions of HAP from the engine do not exceed the major source level. Therefore CAM does not apply to this engine. The proposed new glycol dehydrator is equipped

with a flare to reduce VOC and HAP emissions. According to the GLYCalc run submitted with the March 14, 2006 revised application, uncontrolled VOC and HAP emissions exceed the major source levels. Therefore, the glycol dehydrator is subject to the CAM requirements. For small pollutant specific emission units (controlled emissions do not exceed the major source level) as specified in 40 CFR Part 64 § 64.5(b), a CAM plan is required upon submittal of a renewal application. Since the addition of the dehydrator is being incorporated into the renewal permit, CAM applies at this time to the dehydrator and the CAM requirements will be included in the renewal permit. None of the other emission units are equipped with control devices; therefore, CAM does not apply to any of the emission units at this facility.

The summary of emissions that was presented in the Technical Review Document for the previous renewal permit has been modified to reflect the updated potential to emit (PTE) of both criteria and HAP pollutants **prior to and after** the requested modification (new glycol dehydration unit and hours of operation limit on existing engines). Emissions at the facility are as follows:

Potential to Emit **Prior** to the Modification (new glycol dehydration unit and hours of operation limits on existing engines):

Emission Unit	Potential to Emit (tons/yr)[1]			
	NO_X	CO	VOC	HAPS
S001/CG-1 – Engine	66	109.5	0.64	0.93
S002/CG-2 – Engine	66	109.5	0.64	0.93
S003/CG-7 – Engine	135.8	18.5	3.9	2.4
S004/CG-8 – Engine	153.7	21	4.4	2.66
S005/CG-9 – Engine	153.7	21	4.4	2.66
S006 & S007/CG-10 & CG-11 – Two (2) Engines	34.0	51.0	13.0	5.46
S008 & S009 – Two (2) Ethylene Glycol Dehydrators			37.44	20.4
S010 – Fugitive VOC Emissions from Equipment Leaks			0.6	0.02
S011/CG-12 – Engine	22.2	26.7	7.4	3.6
Total	631.4	357.2	72.42	39.1

[1]reflects appropriate emission factors for engines CG-7 thru CG-9 and updated component count and revised emission factors for fugitive VOC emissions.

In the above table, the criteria pollutant PTE for the dehydrators are based on permitted emissions. PTE for the engines are based on permitted emissions or design rate, 8760 hrs/yr of operation and the appropriate emissions factors. PTE for the fugitive VOCs from equipment leaks are based on the latest component count, latest EPA emission factors and 8760 hrs/yr of operation.

In the above table, the breakdown of HAP emissions by emission unit and individual HAP is provided on page 24 of this document. The HAP PTE is based on the Division's

analysis. As indicated in the table footnotes on page 24, the HAP PTE was determined as follows: for the glycol dehydrators it is based on the GLYCalc run submitted to set permitted emissions; for fugitive VOC emissions it is based on the latest component count, latest EPA emission factors, 8760 hrs/yr of operation and the weight percent of HAPS (as indicated in the wet gas analyses used in the GLYCalc runs for the dehydrators); and for the engines it is based on design rate, permitted hours of operation (or 8760 hrs/yr) and the most conservative emission factor from AP-42 or HAPCalc 2.0. For engines E003 through E005, formaldehyde emissions are based on the emission factor determined from the July 2004 performance test.

Potential to Emit **After** the Modification (new glycol dehydration unit and hours of operation limits on existing engines):

Emission Unit	Potential to Emit (tons/yr)			
	NO_X	CO	VOC	HAPS
S001/CG-1 – Engine	66	109.5	0.64	1.14
S002/CG-2 – Engine	66	109.5	0.64	1.14
S003/CG-7 – Engine	111.5	15.2	3.2	1.41
S004/CG-8 – Engine	122.7	16.7	3.5	1.56
S005/CG-9 Engine	122.7	16.7	3.5	1.56
S006 & S007/CG-10 & CG-11 – Two (2) Engines	34.0	51.0	13.0	4.3
New dehydrator/flare[1]	2.4	13.3	24.9	5.57
New dehydrator reboiler	2.8	0.2	4.6	0.05
S010 - Fugitive VOC Emissions from Equipment Leaks			0.6	0.02
S011/CG-12 – Engine	22.2	26.7	7.4	1.22
Well Head Heaters (various sizes, combined heat input 15 mmBtu/hr)[2]				0.12
Emergency Generator[2]				0.02
Total	550.3	358.8	61.98	18.11

[1]HAP emissions from the dehydrator shown in this table are based on the provisions in 40 CFR Part 63 Subpart HHH § 63.1270(a)(1). VOC emissions are as requested on the APEN and based on 8760 hrs/yr of operation.
[2]Insignificant activities were included in the source's analysis, to appropriately assess HAP emissions for the facility.

In the above table, criteria pollutant PTE for the proposed new dehydrator, reboiler and engines CG-7 thru CG-9 are based on requested emissions. PTE for the remaining engines are based on permitted emissions or design rate, 8760 hrs/yr of operation and the appropriate emissions factors. PTE for the fugitive VOCs from equipment leaks are based on the latest component count, the latest EPA emission factors and 8760 hrs/yr of operation.

In the above table, the breakdown of HAP emissions by emission unit and individual HAP is provided on page 25 of this document. The HAP PTE is based on the source's

analysis included in their March 14, 2006. Note that the source's analysis included more HAPS than indicated on the table on page 25; however, the table on page 25 shows the significant HAPS. As indicated in the table footnotes on page 25, the HAP PTE was determined as follows: for the engines, HAP PTE is based on permitted hours of operation, the GRI HAPCalc version 3.0 field test emission factors, or if no field test factors than the higher of either the GRI literature or EPA factors, except that formaldehyde emissions from engines CG-7, CG-8 and CG-9 are based on the July 2004 performance test factors and for engine CG-12 formaldehyde emissions are based on requested emissions; for the dehydrator it is based on hours of operation determined in accordance with 40 CFR Part 63 Subpart HHH § 63.1270(a)(1); for fugitive VOC emissions it is based on the latest component count, latest EPA emission factors, 8760 hrs/yr of operation and the weight percent of HAPS (as indicated in the wet gas analyses used in the GLYCalc runs for the dehydrator); and for the heaters and reboiler it is based on AP-42 emission factors, design rate and 8760 hr/yr of operation.

Even though actual emissions are typically much less than permitted emissions, the source usually reports permitted emissions as actual emissions, which is an acceptable practice; therefore actual emissions are not shown in either of the above tables.

II. Discussion of Modifications Made

Modifications Related to Reopening

The purpose of the reopening was to include the RICE MACT requirements for the new engine and to include the appropriate MACT requirements for any other emission units. The revisions to the permit to address the MACT requirements are as follows:

General

The current permit includes provisions for the 112(j) case-by-case MACT requirements in Section I, Condition 7 of the permit. The source had submitted a Part 1 application indicating that the facility was a major source for HAPS based on the glycol dehydrator emissions estimated in accordance with traditional PTE methods (i.e. permitted emission limits), rather than the maximum natural gas throughput rate provided in the NGTS MACT. Since the EPA has promulgated rules for all of the source categories, which were not promulgated by the deadline, the case-by-case MACT provisions in 112(j) no longer apply and have been removed from the permit.

RICE MACT (40 CFR Part 63 Subpart ZZZZ)

New Caterpillar Engine

As indicated in their letter and in their initial notification, the new Caterpillar engine (E008) is subject to the MACT requirements and was required to comply with the MACT requirements by August 16, 2004. In our August 16, 2004 letter to the source, the Division asked that the source indicate how this engine would comply with the MACT

requirements. The source's October 26, 2004 response only indicated that the engine was equipped with an oxidation catalyst but did not specify which emission limitation would be met (percent CO reduction or outlet formaldehyde concentration), therefore, the Division has presumed that the source will comply with the CO reduction requirement. In their draft comments on the draft reopened permit, received via e-mail on December 8, 2005, the source confirmed that they were meeting the CO emission reduction limit and were using the continuous parametric monitoring system (CPMS). The CO emission reduction requirements and CPMS requirements have been included in the permit.

Existing Engines

As discussed previously, with the proposed modification to the facility (new dehydrator, hours of operation limit on existing engines and formaldehyde limits on the existing engine), the facility will no longer be a major source for HAP emissions, therefore the RICE MACT requirements do not apply to any other engine at the facility except for the new caterpillar engine.

NGTS Facilities MACT (40 CFR Part 63 Subpart HHH)

Since the existing glycol dehydrators are being removed from the facility and since the facility will be a minor source for HAPS upon startup of the new glycol dehydrator, the NGTS MACT requirements may not apply to these units provided that these units are removed by the compliance date for the existing glycol dehydrators. Since the facility became a major source for HAPS upon startup of the new engine, the compliance date for the existing dehydrators is August 19, 2006 (new engine started up on August 19, 2003, existing units have three years to comply). Therefore, the NGTS MACT provisions will be included in the permit for the existing dehydrators, in the event that the units are not removed prior to August 19, 2006. A note will be added indicating that the dehydrators are to be removed upon startup of the proposed new dehydrator and that it is expected that the units will be removed prior to the compliance date.

As discussed previously, since the facility is determined to be a minor source for HAPS under the procedures in 40 CFR Part 63 Subpart HHH § 63.1270(a)(1), the language in the permit that requires the source to retain records of the maximum natural gas throughput rate (Section I, Condition 6) will remain in the permit.

Source Requested Modifications in Renewal Application

In their January 10, 2006 renewal application, the source requested that the permit be revised to reflect that engines E003 through E005 are 4-cycle lean burn engines. The source has requested that AP-42 emission factors be used to estimate emissions. The new emission factors and the new potential to emit (at 8760 hrs/yr of operation from these engines are shown on the following table:

	NO_X	CO	VOC	Emission Factor Source
New Emission Factors, in lb/mmBtu	4.08	0.557	0.118	AP-42, Section 3.2 (dated 7/00), Table 3.2-2, NO_X at 90-105% load and CO at < 90% load.
Emissions (tons/yr) Predicted by New Emission Factors[1]	443.2	60.5	12.8	
Emission Factors in Current T5 Permit, g/hp-hr	11.4	18.9	0.11	Database of Test Data Supporting EPA's Compilation of Air Pollutant Emission Factors (AP-42), Section 3.2 (dated 7/00).
Emissions (tons/yr) Predicted by Current Emission Factors[1]	352.2	584	3.4	

[1]Predicted emissions are for engines E003, E004 and E005 **combined.**

According to the original Title V permit application submitted on December 30, 1994, Engines E001 through E005 were installed in 1966 and 1973, before the PSD review requirements applied. For sources that did not undergo a physical change or change in the method of operation but increase emissions solely due to a change in emission factors, the Division considers that the emissions from the emission units at the time the unit was installed are at the levels predicted by the new emission factors. Since units E003 through E005 were installed prior to the effective date of any PSD rules, the increase in NO_X emissions due to the emission factor change does not trigger PSD review requirements.

Source Requested Modifications in February 13 and March 14, 2006 Permit Modification Applications

Section II.2 – Engines CG-7 thru CG-9

In their March 14, 2006 submittal, the source requested hours of operation limits on these engines to keep HAP emissions from the facility below the major source level. The source requested limits of 7,008 hours/year per engine. The requested fuel consumption and emission limits that will be included in the permit are as follows:

	Requested Fuel Consumption (MMscf/yr)	Requested Emissions (tons/yr)		
		NO_X	CO	VOC
E003/CG-7	57.5	111.5	15.2	3.2
E004/CG-8	63.3	122.7	16.7	3.5
E005/CG-9	63.3	122.7	16.7	3.5
Total	184.1	356.9	48.6	10.2

The requested emission limits are based on AP-42 emission factors, as discussed under “Source Requested Modifications in Renewal Application” and fuel consumption limits are based on the heat input rates for the engines and a natural gas heat content of 950 Btu/scf. The permit will include the total fuel consumption and emission limitations, in conjunction with the hours of operation limit on each engine in the permit. This is consistent with the current permit for engines E006/CG-10 and E007/CG-11 (Section II.3 of the permit).

The monitoring requirements for these engines are based on guidance developed by the Division for Internal Combustion Engines as shown on the attached Grid titled "Compliance/Scenario Summary - Gas Fired IC Engines" and are included in Section II.2 of the permit. The permit will be revised to require that fuel consumption be recorded and that emissions be calculated monthly. In addition, the source will be required to record hours of operation in order to monitor compliance with the annual hours of operation limit on each engine and to determine the heat content of the natural gas burned as fuel semi-annually.

Section II.5 – Fugitive VOC Emissions from Equipment Leaks

The source indicated that with a revised component count and the latest EPA emission factors that fugitive VOC emission from equipment leaks are below the APEN de minimis level. The Division agrees and has removed the provisions for fugitive VOC emissions from Section II of the permit and included them in the insignificant activity list in Appendix A of the permit.

“Old” Section II.6 – Caterpillar Engine

The source requested an annual emission limit for formaldehyde of 0.53 tons/yr in order to keep HAP emissions below the major source level. The formaldehyde limit has been included in the draft permit. The permit has been revised to require that a performance test be conducted to verify compliance with the requested limitations and to require that formaldehyde emissions be calculated monthly.

Requested emissions are based on the GRI HAPCalc version 3.0 formaldehyde emission factor (field test) for 4-cycle clean burn engines (0.191 g/hp-hr) and 75% control efficiency for the oxidation catalyst. The Division generally includes emission factors in units of lbs/mmBtu in the operating permit. Therefore, the emission factor has been converted to lbs/mmBtu using the following equation and the design heat rate of the engine (7,414 Btu/hp-hr).

$$\text{EF (lbs/mmBtu)} = \frac{\text{EF (g/hp-hr)} \times 10^6 \text{ Btu/mmBtu}}{\text{Heat Rate (Btu/hp-hr)} \times 453.6 \text{ g/lb}}$$

The emission factor that will be included in the permit is 0.0142 lb/mmBtu, which incorporates the 75% control efficiency (0.0568 lb/mmBtu, uncontrolled).

Note that typically for units that are equipped with controls to reduce potential emissions in order to avoid applicable requirements, generally monthly emission and fuel consumption limits are included in the permit for the first year of operation. In this particular case, the source is taking credit for the control device to reduce HAP emissions and become a minor source for HAPS. HAP emissions for this engine are calculated based on an emission factor, which takes credit for 75% reduction in formaldehyde emissions and the annual fuel consumption limit. This engine has been operating for well over a year and has demonstrated compliance with the fuel consumption limits. A performance test has been included in the permit to verify the annual emission limit/emission factor therefore, the Division considers that monthly emission limits are not necessary since the performance test will verify the annual emissions limit/emission factor.

"New" Section II.6 – Proposed New Glycol Dehydrator

Although the facility is a major stationary source for purposes of PSD review requirements, requested emissions from the glycol dehydrator/flare and reboiler are below the PSD significance levels. Therefore, PSD review does not apply to this modification. Requested emissions from these emission units are as follows:

Emission Unit	NO_X	CO	VOC
Flare/Dehydrator	2.4	13.3	24.9
Reboiler	2.8	0.2	4.6
Total	5.2	13.5	29.5

In addition, no modeling is required for this modification. In general, there is no increase in emissions after the modification, except for a minor increase in CO emissions (1.6 tons/yr) as indicated in the below table. The increase in CO emissions is well below the modeling threshold (100 tons/yr) specified in the Division's modeling guidance, therefore no modeling for CO is required.

	NO_X	CO	VOC
Facility PTE after the Mod	550.3	358.8	61.98
Facility PTE prior to the Mod	631.4	357.2	72.42
Change in Emissions	-81.1	1.6	-10.44

The source requested that approval be given to install and operate the following triethylene glycol dehydration unit. This unit is intended to replace the existing ethylene glycol dehydrators.

D003 – Engineering Technologies, Inc. Triethylene Glycol Dehydrator, rated at 500 mmSCF/day, Equipped with a Flash Tank, Model and Serial No. Unavailable. Emissions from the regenerator vent and flash tank are routed to the plant flare.

Applicable Requirements – The source has requested that the Division approve the construction and operation of this dehydration unit. Since the source has requested that this unit be processed as a combined construction/operating permit, no construction permit will be issued and all applicable requirements will be incorporated directly into the operating permit with this modification. The applicable requirements for this unit are as follows:

- Construction of this source must commence within 18 months of initial approval permit issuance date or within 18 months of date on which such construction or activity was scheduled to commence as stated in the application (Reg 3, Part B, Section III.g.4.a.(i) thru (ii)).

- Within 180 days after commencement of operation, compliance with the conditions contained on this permit shall be demonstrated to the Division (Reg 3, Part B, Section III.G.2).

- The permittee shall notify the Division, in writing, thirty (30) days prior to startup (Reg 3, Part B, Section III.G.1).

- Since this unit is replacing two existing dehydrators, a requirement will be included to remove the previous dehydrators from the site or render them inoperable prior to starting up the new unit.

- Natural Gas processed through the glycol dehydrator shall not exceed 182,500 mmSCF/yr (as requested by the APEN submitted on March 14, 2006).

- Supplemental Fuel to the flare shall not be less than 2,340 mmSCF/hr (based on proposed supplemental fuel indicated in the February 13, 2006 construction permit application).

- Total gas (dehydrator regenerator (still) vent and flash tank vent and supplemental fuel) shall not exceed 358.8 mmSCF/yr (based on calculated fuel requirements for flare in the February 13, 2006 construction permit application).

- Emissions of air pollutants from the flare and glycol dehydrator shall not exceed the following limitations (as requested by the APEN submitted on March 14, 2006):

  - VOC 24.9 tons/yr
  - NO_X 2.4 tons/yr
  - CO 13.3 tons/yr

  Note the controls on this dehydrator are used to keep emissions below the PSD significance levels and to reduce HAP emissions, monthly emission and processing limits are required for the first year of operation, therefore the following monthly emission and processing limits will be included in the permit.

VOC – 2.1 tons/mo, NO_X – 0.21 tons/mo, CO – 1.1 tons/mo, natural gas processed through the dehydrator – 15,500 mmSCF/mo and gas combusted by the flare – 30.474 mmSCF/mo.

The monthly emission and processing limits are based on a 31 day month.

- Operating requirements for the flare were added to the permit. Since use of the flare keeps emissions below both the PSD significance levels and the HAP major source level, the Division considers that it is appropriate to include the substantive requirements of 40 CFR Part 63 Subpart A § 63.11(b). These requirements include operating the flare at all times that emissions are vented to it, maintaining a flame in the flare at all times it is operating and operating the flare with no visible emissions.

- Performance test requirements will be included for the flare. Performance tests are required for visible emissions, Btu content of gas burned and velocity. Performance tests will be required to be conducted in accordance with the provisions in § 63.11(b).

- Opacity of emissions from smokeless flares shall not exceed 30% (Colorado Regulation No. 1, Section II.A.5).

- Compliance assurance monitoring (CAM) requirements

  A CAM plan was not submitted with the application to install the new glycol dehydrator, since the original application requested that the project be processed as a construction permit and CAM does not apply to construction permits. Since the project to add the new dehydrator is being processed as a combined construction/operating permit and is being processed in conjunction with the renewal permit, CAM applies to dehydrator. The Division has included a CAM plan in the permit consistent with CAM plans approved for other emission units equipped with open flares. The indicators to be monitored are the presence of a flame and the pilot spark light.

  The CAM rule specifies that presumptively acceptable monitoring includes monitoring required for any standards that are exempt from CAM (i.e. MACT standards), provided the monitoring is applicable to the control device (40 CFR Part 64 § 64.4(b)(4), as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV). The specific monitoring requirements for a glycol dehydrator equipped with an open flare in the NGTS MACT are found at § 63.1283(d)(3)(i)(C) and state that “For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame”. Therefore, the Division considers that specifying a heat sensing monitoring device to detect the presence of a flame is an appropriate indicator, since the NGTS MACT requires monitoring for the presence of a flame. CAM specifies that for small pollutant specific emission units (i.e. emission units with controlled emissions less than the major source level) that the minimum monitoring frequency for at least some parameters is every 24 hours (40 CFR

Part 64 § 64.3(b)(4)(iii) as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV). Therefore, although the heat sensing device continuously monitors the presence of a flame, since the dehydrator is a small pollutant specific emission unit, the Division considers that a continuous recorder is not necessary to meet the CAM requirements and therefore, daily checks on the presence of a flame are sufficient to meet CAM. Therefore, although the monitoring cannot be considered presumptive CAM, the indicator (presence of a flame) and the monitoring method (heat sensing device) are consistent with the parameters and monitoring method specified in the NGTS MACT and the frequency of monitoring the indicator meets the requirements in 40 CFR Part 64 § 64.3(b)(4)(iii), as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV; therefore the Division considers that the monitoring in the CAM plan meets the CAM requirements. Note that monitoring the pilot light spark is not required under the NGTS MACT but is an additional measure that has been proposed by other sources to prevent flame outages and has been included in the CAM plan for this unit.

Emission Factors – Triethylene glycol is contacted with the natural gas stream to remove moisture. This glycol-water mixture is heated in the still vent portion of the unit which drives off the water and some entrained VOCs. Emissions from this process were predicted using the Gas Research Institute's GLYCalc Model. Emission factors of VOC and various HAPs are dependent upon the variables input into this Model. These variables include glycol recirculation rate, cubic feet of gas processed, inlet temperature and pressure of the processed wet gas, flash tank temperature and pressure, the control efficiency of the flare and percentage breakdown by volume of constituents in the natural gas.

Emissions of NO_X and CO are generated from the flare when the gases from supplemental fuel and the glycol dehydrator still vent and flash tank vent are combusted. Emissions for these pollutants are estimated using the following emission factors:

Pollutant	Emission Factor	Source
NO_X	0.068 lb/mmBtu	AP-42, Section 13.5 (dated 9/91), Table 13.5-1
CO	0.37 lb/mmBtu	

Note that there are additional VOC emissions generated from the combustion of the supplemental fuel by the flare. However, compared to the VOC emission from the glycol dehydrator, these emissions are insignificant (less than 0.5 ton/yr) and will therefore not be included in the permit.

Monitoring Plan – The wet gas (inlet) temperature, glycol recirculation rate, and gas BTEX content as the three critical inputs to the GRI GLYCalc Model for triethylene glycol units. Changes to the gas flow rate and inlet pressure do not radically affect emissions from glycol dehydrators. Therefore, parametric monitoring of the inlet temperature, recirculation rate and BTEX content will be required as part of the

monitoring plan for this site for this facility. Inlet pressure will be held constant for modeling purposes. Modeling will only be required when the defined values for inlet temperature, recirculation rate and BTEX content are not indicative of operating conditions during the month. The frequency of sampling and analysis of the wet gas BTEX concentration is annual, with provisions to increase sampling and analysis if the concentrations used in the GLYCalc analysis are exceeded. Frequency of monitoring for other parameters (wet gas temperature and glycol circulation rate will be daily. In addition, a performance test will be required for the flare for visible emissions, Btu content of gas burned and velocity.

"New" Section 7 – Glycol Dehydrator Reboiler

B001 - Maxon Reboiler, Model No. SPL Tube-O-Flame, rated at 6.3 mmBtu/hr, Serial No. Not Available

Applicable Requirements - The source has requested that the Division approve the construction and operation of this reboiler. Since the source has requested that this unit be processed as a combined construction/operating permit, no construction permit will be issued and all applicable requirements will be incorporated directly into the operating permit with this modification. The applicable requirements for this unit are as follows:

- Construction of this source must commence within 18 months of initial approval permit issuance date or within 18 months of date on which such construction or activity was scheduled to commence as stated in the application (Reg 3, Part B, Section III.g.4.a.(i) thru (ii)).

- Within 180 days after commencement of operation, compliance with the conditions contained on this permit shall be demonstrated to the Division (Reg 3, Part B, Section III.G.2).

- The permittee shall notify the Division, in writing, thirty (30) days prior to startup (Reg 3, Part B, Section III.G.1).

- Opacity of emissions shall not exceed 20% (Colorado Regulation No. 1, Section II.A.1)

  Note that no condition is included for the Reg 1 30% opacity standard, which is applicable during certain operating activities. The specific activities under which the 30% opacity standard applies are: building a new fire, cleaning of fire boxes, soot blowing, startup, any process modification, or adjustment or occasional cleaning of control equipment. Based on engineering judgment the Division considers that building a new fire, cleaning of fire boxes and soot-blowing does not apply to the operation of a small natural gas fired heater. In addition, this unit does not have a control device, so adjustment or occasional cleaning of control devices do not apply to this unit. Process modifications and startup may apply to heaters, however, based on engineering judgment, the Division believes that

such activities would be unlikely to occur for longer than six minutes. Therefore, the 30% opacity requirement has not been included in the operating permit.

- Natural Gas consumption shall not exceed 58.1 mmSCF/yr (as requested by the APEN submitted on February, 2006).

- Emissions of air pollutants from the reboiler shall not exceed the following limitations (as requested by the APEN submitted on February 13, 2006):

  - VOC 0.2 tons/yr
  - NO_X 2.8 tons/yr
  - CO 4.6 tons/yr

  Note that since VOC emissions are below the APEN de minimis level, the VOC emission limit will not be included in the permit, although VOC emissions must be reported on any APENs.

  Note that since this reboiler is a true minor source, the Division does not require that monthly emission and fuel consumption limits be imposed on this source for the first year of operation as this requirement only applies for major or synthetic minor sources.

- Particulate matter emissions shall not exceed $0.5(FI)^{-0.26}$ lbs/mmBtu, where FI is the fuel input in mmBtu/hr (Reg 1, Section III.A.1.b).

  Where: PE = Particulate emissions in lbs/mmBtu
  FI = Fuel input in mmBtu/hr

  At the maximum heat rate of the heater, the particulate matter limit is 0.310 lbs/mmBtu. Since this is the most conservative limit, this value will be included in the permit.

- Regulation No. 6 – standards of performance for New Stationary Sources, Part B - Specific Facilities and Sources, Non-Federal NSPS, II – Standards of Performance for New Fuel-Burning Equipment, **State-only requirements** as follows:

  - Particulate matter emissions shall not exceed 20% opacity
  - Particulate matter emissions shall not exceed $PE = 0.5(FI)^{-0.26}$ (Section II.C.2)

    Where: PE = Particulate emissions in lbs/mmBtu
    FI = Fuel input in mmBtu/hr

- Regulation No. 6 – standards of performance for New Stationary Sources, Part B - Specific Facilities and Sources, Non-Federal NSPS, I. – General Provisions, **State-only requirements** as follows:

- Circumvention (40 CFR Part 60 § 60.12, as adopted by reference in Colorado Regulation No. 6, Part B, Section I.A)
- Good Practices (40 CFR Part 60 § 60.11(d), as adopted by reference in Colorado Regulation No. 6, Part B, Section I.A)
- Records of startups, shutdowns and malfunctions shall be maintained (40 CFR Part 60 § 60.7(b), as adopted by reference in Colorado Regulation No. 6, Part B, Section I.A)

Streamlining of Applicable Requirements

Opacity

The reboiler is subject to the Reg 1 20% opacity requirement. Generally the Reg 1 20% opacity requirement applies at all times, except under certain conditions when the Reg 1 30% opacity requirement applies. As discussed previously, the Division considers that those certain conditions when the 30% opacity requirement applies do not apply the reboiler; therefore, the Reg 1 20% opacity requirement applies at all times. The reboiler is also subject to the state-only Reg 6, Part B 20% opacity requirement. Reg 6, Part B, Section I.A, adopts, by reference, the 40 CFR Part 60 Subpart A general provisions. 40 CFR Part 60 Subpart A § 60.11(c) specifies that the opacity requirements are not applicable during periods of startup, shutdown and malfunction. Therefore since the Reg 1 20% opacity requirement is more stringent that the Reg 6, Part B opacity requirement, the Reg 6 Part B 20% opacity requirement will be streamlined out of the permit.

PM

The reboiler is subject to the Reg 1 particulate matter requirements and the state-only, Reg 6, Part B particulate matter requirements. The particulate matter requirements in both Reg 1 and Reg 6, Part B are the same standard. The Reg 1 particulate matter requirements apply at all times. Reg 6, Part B, Section I.A, adopts, by reference, the 40 CFR Part 60 Subpart A general provisions. Although not specifically stated in the general provisions, the Division has concluded after reviewing EPA determinations that the NSPS standards are not applicable during startup, shutdown and malfunction, although any excess emissions during these periods must be reported in the quarterly excess emission reports, if required. Specifically, EPA has indicated (4/18/75, determination control no. A007) that when 40 CFR Part 60 Subpart A § 60.11(d) was developed "...it was recognized that sources which ordinarily comply with the standards may during periods of startup, shutdown and malfunction unavoidably release pollutants in excess of the standards." In addition, EPA has also indicated (5/15/74, determination control number D034) that "[s]ection 60.11(a) makes it clear that the data obtained from these reports are not used in determining violations of the emission standards. Our purpose in requiring the submittal of excess emissions is to determine whether affected facilities are being operated and maintained 'in a manner consistent with good air pollution control practices for minimizing emissions' as required by 60.11(d)." Therefore, the Division considers that the Reg 6, Part B particulate matter

requirements do not apply during periods of startup, shutdown and malfunction. As a result, the Reg 6, Part B requirements have been streamlined out of the permit.

Emission Factors – In their construction permit application submitted on February 13, 2006, the source proposed to use the following emission factors for the reboiler:

Pollutant	Emission Factor	Emission Factor Source	AP-42 Emission Factor[1]
NO_X	0.101 lb/mmBtu	Manufacturer	0.098 lb/mmBtu
CO	0.166 lb/mmBtu	Manufacturer	0.082 lb/mmBtu

[1]AP-42 emission factors shown as comparison. AP-42 emission factors from Section 1.4 (dated March 1998), Table 1.4-1 (small boilers (< 100 mmBtu/hr), uncontrolled) converted to lb/mmBtu based on a gas heat content of 1020 Btu/scf).

Monitoring Plan - The Division will require that the source monitor compliance with the emission limits by calculating emissions monthly, using the approved emission factors and the monthly fuel consumption. Emission calculations shall be conducted monthly. Compliance with the particulate matter and opacity requirement will be presumed, in the absence of credible evidence to the contrary, since natural gas is the only fuel used in this reboiler.

Other Modifications

In addition to the changes made to the permit related to the cause for reopening, the renewal and the modification, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Ft. Morgan Renewal Operating Permit with the source's requested modifications.

Page following cover page

- Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance. Note that the source has requested monitoring/compliance periods and report/certification due dates on a calendar year basis. It should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

General

- The Reg 3 citations were revised throughout the permit, as necessary, based on the recent revisions made to Reg 3.

Section I – General Activities and Summary

- In Condition 1.4 General Condition 3.g (Common Provisions, Affirmative Defense) was added as a State-only requirement.

- Revised the AIRS stack number in Condition 8.1 (summary of emissions) to indicate the grouping of engines E003 through E005 and the dehydrators. In addition added the serial number for the new engine (S011) and added language indicating that the engine is equipped with an oxidation catalyst.

- Added language to Condition 5 (CAM) indicating that CAM applies to the proposed new dehydrator.

- The requirement to raise the stack heights for several existing engines (Condition 9) was removed since this has been completed.

Section II.1 – Engines E001 and E002

- Based on EPA's response to a petition on a Title V operating permit, a statement was added to Condition 1.3 (opacity) requiring that the source maintain records that verify that only natural gas is used as fuel in the engine. Minor language changes were made in the table and the text indicating that only natural gas is used as fuel.

Section II.2 – Engines E003 through E005

- Based on EPA's response to a petition on another Title V operating permit, minor language changes were made to Condition 2.3 (both in the table and the text) to clarify that only natural gas is used as fuel in these engines.

- These engines were previously identified as rich burn engines in the Title V permit, however, the source indicated in the renewal application that with the definition of a lean burn engine provided in the RICE MACT and in Colorado Regulation No. 7, Section XVI, they determined that their engines should be identified as lean burn engines. Lean burn engines are identified as engines with a normal exhaust gas O_2 concentration greater than 2%. The source indicated in their renewal application that portable monitoring on these engines has indicated an exhaust gas oxygen content of well over 2%. Since no additional applicable requirements were avoided in the re-classification of these engine as lean burn engines, the Division considers that quarterly portable monitoring is sufficient to demonstrate that the O_2 content of the exhaust gas is over 2%.

Clarification on Engine Status based on Language in the Technical Review Document for the Original Title V Permit

The Technical Review Document written to support the original Title V Permit (issued on March 26, 1997) indicates that engines E001 through E004 were installed

in 1966 (E003) and 1973 (others). The document goes on to state that E003 is grandfathered from construction permit requirements and that since the remaining engines were installed prior to 1983 and had a rated horsepower of less than 1000 hp they were exempt from construction permit requirements. The document listed the site rated horsepower of E004 as under 1000 hp, but the Title V permit has always indicated that the engine is rated at 1100 hp. The construction permit exemption that was in effect until 1983 does not indicate whether the horsepower exemption was based on maximum, manufacturer's or site rating, therefore, the reason provided for the permit exemption for E004 is not necessarily correct. A review of the files indicates that as reported on an Air Contaminant Emission Notice dated July 6, 1970, equipment at the facility consisted of one 1000 hp and one 1100 hp White Superior Engine. Therefore, the Division considers that E004 was exempt from construction permit requirements because it was grandfathered (i.e. construction commenced prior to February 1, 1972), not due to the 1000 hp engine exemption.

Sections II.3 and 6 – Permitted Engines

- The portable monitoring language was moved to "new" condition 8, so that the language does not have to be repeated numerous times. The portable monitoring language was updated to the current language, which requires that the portable monitoring conducted verify the emission factors in the permit.

- Revised the language in Conditions 3.2 and 6.2 (fuel consumption) to indicate that fuel is allocated based on engine size, not on the design heat rate of the engines. The renewal application (submitted on January 10, 2006) indicates that the heat rate (Btu/hp-hr) of engines CG-7, CG-8 and CG-9 are the same; however, the fuel consumption rates of CG-8 and C-9 are greater than CG-7. So using the design heat rate of the engine would not result in the correct allocation of fuel for these units.

- Based on EPA's response to a petition on another Title V operating permit, minor language changes were made to Conditions 3.2, 6.2, 3.5 and 6.6 (both in the table and the text) to clarify that only natural gas is used as fuel in the engines.

- Removed Conditions 6.5 (commence construction), 6.6 (startup notification) and 6.7 (compliance certification). The engine commenced operation on August 19, 2003 and the requirements in these conditions have been fulfilled.

"New" Section II.9 – Insignificant Activities

Based on the HAP analysis conducted by the source, which included existing fuel burning insignificant activities, formaldehyde emissions were 8.8 tons/yr. Since the facility is close to the major source level for HAPS, a permit condition has been added to maintain records of any new fuel burning insignificant activities and to calculate formaldehyde emissions from these units in order to appropriately asses the major source status of HAP emissions at the facility.

Section III – Permit Shield

- The citation in the permit shield was corrected and updated to reflect the changes made to Regulation No. 3. The references to Part C, Section V.C.1.b and C.R.S § 25-7-111(2)(i) were removed since they don't address the permit shield.

Section IV – General Conditions

- General Condition No. 3 was revised to reflect that 3.g (affirmative defense) is state-only until approved by EPA.

- General Condition No. 21 (prompt deviation reporting) was revised to include the definition of prompt in 40 CFR part 71.

Appendices

- Revised Appendices B and C to latest version.

- In the tables in Appendices B and C included the serial number for E008/CG-12 and included language indicating that the engine is equipped with an oxidation catalyst.

HAPS per Division Analysis - Prior to the Mod

Unit	HAP Emissions (tons/yr)									
	acetaldehyde	acrolein	benzene	toluene	ethyl benzene	xylene	formaldehyde	n-hexane	methanol	**total**
E001	5.68E-02	5.36E-02	1.28E-01	4.11E-02		9.27E-03	5.74E-01		6.23E-02	9.25E-01
E002	5.68E-02	5.36E-02	1.28E-01	4.11E-02		9.27E-03	5.74E-01		6.23E-02	9.25E-01
E003	2.78E-01	1.93E-01	5.02E-02	2.60E-01		1.35E-02	1.49E-00	3.69E-02	8.32E-02	2.40E-00
E004	3.15E-01	2.12E-01	5.52E-02	2.86E-01		1.49E-02	1.64E-00	4.18E-02	9.42E-02	2.66E-00
E005	3.15E-01	2.12E-01	5.52E-02	2.86E-01		1.49E-02	1.64E-00	4.18E-02	9.42E-02	2.66E-00
E006*	2.28E-01	1.70E-01	4.42E-02	2.29E-01		1.19E-02	1.95E-00	3.03E-02	6.83E-02	2.73E-00
E007*	2.28E-01	1.70E-01	4.42E-02	2.29E-01		1.19E-02	1.95E-00	3.03E-02	6.83E-02	2.73E-00
D001/D002			7.73E-00	9.03E-00	1.43E-00	1.79E-00		4.44E-01		2.04E+01
Fugitive VOCs			2.97E-03	7.16E-03	2.10E-03	2.10E-03		4.19E-03		1.85E-02
E008	3.12E-01	2.22E-01	5.78E-02	2.99E-01		1.56E-02	2.56E-00	4.15E-02	9.34E-02	3.60E-00
Total	1.79E-00	1.29E-00	8.30E-00	1.07E+01	1.43E-00	1.89E-00	1.24E+01	6.71E-01	6.26E-01	3.91E+01
Total before E008	1.48E-00	1.06E-00	8.24E-00	1.04E+01	1.43E-00	1.88E-00	9.82E-00	6.29E-01	5.33E-01	3.55E+01

*Engine limited to 7008 hrs/yr of operation.

Engine emissions are based on most conservative emission factor (from AP-42 and HAPCalc 2.0, for 4-cycle rich burn engines and/or 4-cycle lean/clean burn) for each pollutant, except that for E003, E004 and E005 formaldehyde emission factor from July 2004 performance test

Dehy emissions from GLYCalc run used to set permit limits

Fugitive VOC emissions are based on latest component count, latest EPA emission factors, 8760 hrs/yr of operation and the HAPS from wet gas analysis used to set dehy permit limits.

HAPS per Source Analysis - after Mod

Note that more HAPS were included in the source's March 14, 2006 submittal, the table below lists the more significant HAPS

Unit	HAP Emissions (tons/yr)									
	acetaldehyde	acrolein	benzene	toluene	ethyl benzene	xylene	formaldehyde	n-hexane	methanol	**total**
E001	1.03E-01	6.31E-02	1.81E-01	5.78E-02	1.40E-03	1.63E-02	5.76E-01		1.16E-01	1.11E-00
E002	1.03E-01	6.31E-02	1.81E-01	5.78E-02	1.40E-03	1.63E-02	5.76E-01		1.16E-01	1.11E-00
E003*	3.86E-02	5.72E-02	1.60E-03	2.80E-02	2.50E-03	9.80E-03	1.21E-00	4.00E-03	3.38E-02	1.38E-00
E004*	4.25E-02	6.29E-02	1.70E-03	3.08E-02	2.70E-03	1.08E-02	1.33E-00	4.00E-03	3.72E-02	1.52E-00
E005*	4.25E-02	6.29E-02	1.70E-03	3.08E-02	2.70E-03	1.08E-02	1.33E-00	4.00E-03	3.72E-02	1.52E-00
E006*	1.43E-01	1.50E-01	3.08E-02	2.58E-02	2.10E-03	9.30E-03	1.62E-00	2.35E-02	1.09E-01	2.12E-00
E007*	1.43E-01	1.50E-01	3.08E-02	2.58E-02	2.10E-03	9.30E-03	1.62E-00	2.35E-02	1.09E-01	2.12E-00
New Dehy			7.90E-01	2.59E-00	9.10E-01	1.24E-00		3.00E-02		5.56E-00
New Dehy Reboiler (6.3 mmBtu/hr)			5.68E-05	9.20E-05			2.03E-03	4.87E-02		5.09E-02
Emergency Generator (500 hp)**							1.60E-02			1.60E-02
Well Head Separators (various sizes, combined heat input 15 mmBtu/hr)			1.35E-04	2.19E-04			4.83E-03	1.16E-01		1.21E-01
Fugitive VOCs			2.97E-03	7.16E-03	2.10E-03	2.10E-03		4.19E-03		1.85E-02
E008	1.87E-01	1.97E-01	4.03E-02	3.38E-02	2.80E-03	1.21E-02	5.30E-01	3.08E-02	1.43E-01	1.18E-00
Total	8.00E-01	8.07E-01	1.26E-00	2.89E-00	9.30E-01	1.34E-00	8.81E-00	2.89E-01	7.02E-01	1.78E+01

*Engine limited to 7008 hrs/yr of operation.

**emergency generator is APEN exempt at 250 hrs/hr of operation (Reg 3, Part A, Section II.D.1.ttt.(ii)), emissions based on 250 hrs/yr of operation.

Engine emissions are based on GRI HAPCalc version 3.0 field test emission factors, if no field test factors then GRI literature or EPA factors for each pollutant, except that for E003, E004 and E005 formaldehyde emission factor from July 2004 performance test and for E008 formaldehyde based on requested emissions.

Dehy emissions from GLYCalc run @ 2634 hrs/yr (per 63.1270(a)(1))

Fugitive VOC emissions are based on latest component count, latest EPA emission factors, 8760 hrs/yr of operation and the HAPs from wet gas analysis for dehy run.

Emission factors for dehy reboiler and well head separators are based on design rate, AP-42 emission factors and 8760 hrs/yr of operation.